

**ABSTRACT**

The present invention is directed to selection of individual patient archwires by examining the patients inner arch rather than the patients teeth. In particular, a method of archwire selection comprises (a) obtaining a representation of a patient's inner arch curve (a "PIAC"); (b) selecting an archwire shape based at least partially on the PIAC representation; (c) making an initial selection of an archwire size based at least partially on the PIAC representation; (d) selecting a final archwire size after considering something other than the PIAC representation; and (e) selecting an archwire to be used based on the selected archwire shape and selected final archwire size. Using the PIAC rather than the occlusal or labial and buccal surfaces of the teeth for archwire shape selection promotes shaping the teeth to the shape of the jaw bone and gives consistent facial esthetics plus better retention of the treatment correction. Use of a patients PIAC/jaw bone structure also facilitates automating the process of archwire selection.